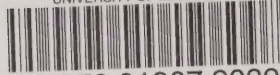


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the Journal of College Radio

Volume XXIV Number 1 1990-91

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FCC Adopts Indecency Report

FCC Permit Fee Update

Finding the Right Format

DAB is Coming

Carrier Current Coupling

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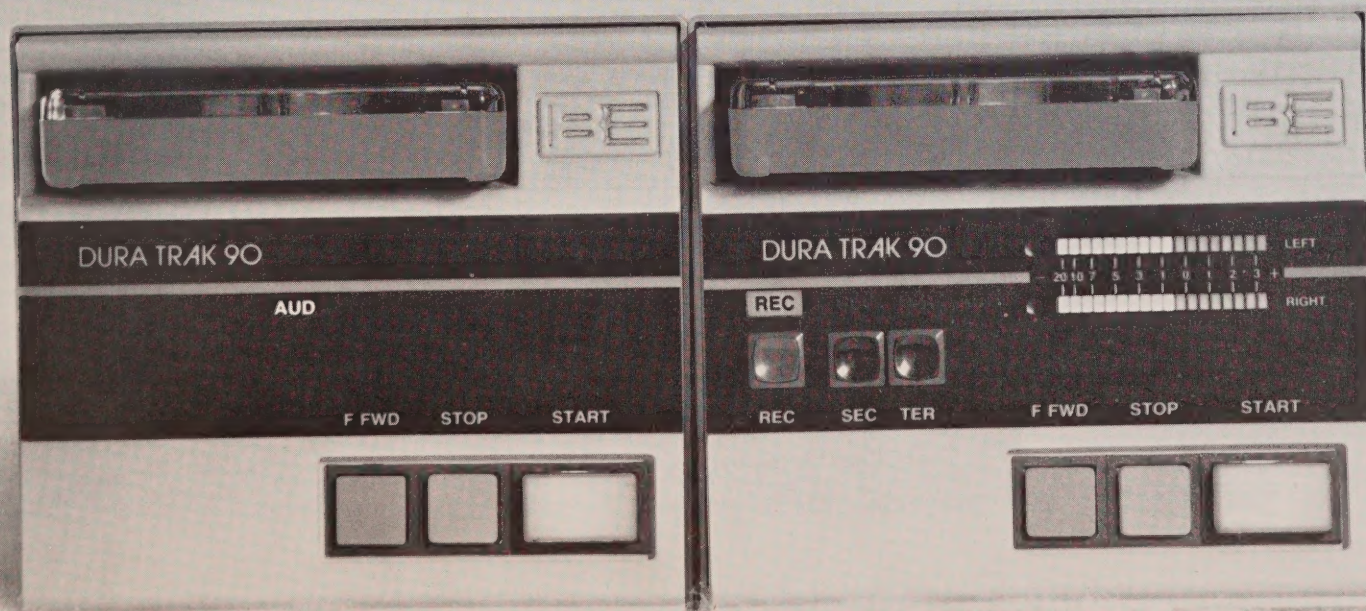
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DURA TRAK 90 STEREO PLAYBACK & DURA TRAK 90 STEREO RECORD/PLAYBACK



the Journal of College Radio

Volume XXIV No. 1
1990-91

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IN THIS ISSUE:

The Editor's Log	3
<i>"What's in a name?" & "FCC adopts Indecency Report"</i>	
FCC Fee Update	4
<i>Where things stand with the new \$35 operator's permit fee</i>	
Finding the Right Format	6
<i>Careful re-reading of survey data turns a decline around</i>	
DAB is Coming	7
<i>Digital Audio Broadcasting could make your station obsolete</i>	
Record Eruption at Oregon State	8
<i>KBVR-FM's weekly station promotion</i>	
Carrier Current Coupling	9
<i>An easy-to-understand explanation and brief history</i>	
PC-Logger	12
<i>Generating Program Logs with an MS-DOS Computer</i>	
AP NewsDesk at WONC-FM	15
<i>North Central College was first with this time saving program</i>	
Staring at the Sun without Sunglasses	16
<i>How to prevent radio career burnout</i>	
Company Lines	19
<i>News, Information, Hints, and Tips from suppliers</i>	
Cover Photo:	The Student Union at SUNY New Paltz is home to WRNP, a carrier current station since 1972. After an 18 year effort to gain an FM station, WFNP began airing on September 5th. Pictures of the expanded station are on the inside back cover.

The Journal of College Radio was founded in 1941 by the Intercollegiate Broadcasting System, Inc. using the title *IBS Bulletin*. The name was changed in 1955 to *IBS Newsletter*. In 1964 it became *College Radio* and in 1969, the *Journal of College Radio* © 1990 IBS.

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THE EDITOR'S LOG

What's in a Name?

YOUR STATION'S GOOD NAME IS ONE OF its most valuable, yet often overlooked assets. While your station call-letters may not seem worth much, they symbolize your station and its standing in the community.

This fact was brought to mind recently when a station manager called to describe an approach made by a group of out-of-town hustlers. They wanted to use the station's call-letters in a local business promotion. According to the manager, this company said it would sell ads in a coupon book to local merchants, then give the books away using an automatic telephone dialing system with a recorded message. The message, to be recorded by the station, would start out with the statement, "You have been selected to go on a free \$1,000 shopping spree!" The station would receive \$5 for each book given away, with an expected minimum of 1,500 copies or \$7,500. No on-air announcements would be required, only the station's call-letters would be used both in the telephone solicitation and on the covers of the coupon books. The station would not be held liable for any complaints, but \$500 would be given to the station to satisfy any complaints or requests for refunds.

The scheme sounded a bit shaky, and, although he didn't know why, the station manager had a "gut" feeling that things weren't quite right.

A reading of both the sponsor contract and the advertiser agreement confirmed his initial feelings. The books were not to be given away, but sold. No minimum amounts were guaranteed for the station in the contract. The station had no control of what would be said in its name when soliciting either advertisers or coupon book buyers. Revenue would not come from advertisers – who would be given free space – but only from those who purchased the coupon books. The monetary return to the station would be based on the number of books sold, not given away.

Without serious consideration, a college radio station might be tempted to accept this scheme at face value. After all, what have they got to lose? Only the good name and reputation of the station.

Having no control over either what is said and done in their name, or what promises are made or implied leaves the station totally vulnerable. All complaints and problems will fall directly on the station which was identified in the promotion as the "sponsor", not on the out-of-town promoters who

will be long gone by the time the coupon books are printed. Being offered \$500 to satisfy complaints indicates complaints are to be expected.

What would this loss of goodwill mean for the station's future fundraising efforts within the business community and among listeners?

If your station is approached, it could be in connection with a coupon book, the "selling" of public service announcements, the promotion of a concert, or any other scheme involving the use of your station's call-letters to help someone else make a profit at the possible expense of the station's good name.

Given college radio stations' continuing need for funding and promoters' continued search for new ways to make a buck, it is entirely possible that you will get a pitch. Noncommercial stations, especially, should think long and hard before giving an outside party the right to use or abuse their station's good name.

FCC Adopts Indecency Report

OVER THE SUMMER, WHILE MANY OF YOU WERE away, the FCC adopted a report which concluded that their proposed enforcement of a 24-hour-a-day ban on broadcast indecency would be constitutional. The report was made to the U. S. Court of Appeals for the District of Columbia, which has stayed implementation of the ban pending judicial review.

The FCC said it found that children are in the broadcast audience for both radio and TV at all times of the day and night and that alternatives such as time channeling and technological restrictions are "insufficient to protect them from exposure to harmful indecent programming." The Commission defined "children" as minors, 17 and younger, confirmed that they would not change their definition of indecency, and said that adults had alternative sources of indecent materials.

They did leave one loophole, though that may be stretching the term. Stations could justify broadcast of indecent material if they could "demonstrate that children, in fact, are not present in the broadcast audience for the market at the time the programming at issue was aired." Of course, that would be impossible for a station to prove.

None of this comes as much of a surprise. Since congressional passage of the ban as a rider to an appropriations bill, the FCC has supported the 24-hour-a-day ban. The courts, however, have shown a tendency toward accepting time channeling the

broadcast of indecent materials under First Amendment protection.

For the moment, the FCC report doesn't change anything. The court stay remains in effect until the court gets around to dealing with the issue. Stations may air "indecent" material during the overnight "safe harbor" period if preceded by an appropriate warning announcement.

Keep in mind that "indecent" and "obscene" are defined differently. The FCC says that indecent material is "language that describes, in terms patently offensive as measured by contemporary community standards for the broadcast medium, sexual or excretory activities or organs." Remember that the FCC has said it would itself determine "contemporary community standards for the broadcast medium" — not the local community.

On the other hand, materials considered obscene are already prohibited from broadcast at any time of day or night. Obscene material must meet a 3-prong test:

- (1) An average person, applying contemporary community standards, must find that the material as a whole, appeals to the prurient interest; and

- (2) The material must describe in a patently offensive way, sexual conduct specifically defined by applicable state law; and

- (3) The material, taken as a whole, must lack serious literary, artistic, political or scientific value.

Is all of that perfectly clear? Local, state, and federal courts have been struggling for years to pin down these definitions. It's like trying to nail Jello to the wall.

Meanwhile, you have to make some judgement calls at your station on the content and timing of broadcast material that may be deemed questionable.

We have often repeated that your actual mileage may vary, *i.e.*, the limitations at your station may be tighter than those the FCC, the First Amendment, or the courts allow. Since most stations are licensed to a school or college board of trustees, your boundaries may be what *they* will accept and defend. Few boards of trustees have indicated an interest in association with or support of the broadcasting of "sensitive" language, so that may be where the line is drawn for your station.

The bottom line is simple. You've got to put your station's policies in writing and get copies to all your on-air people *before* a problem comes up. Afterward may be too late with the FCC or possibly with your station's licensee. Loss of station management credibility with the board of trustees could take many years to rebuild. That's a legacy none of us want to leave our stations.

We'll keep watch for future decisions from the courts and the FCC, and then let you know about them and how they may affect your station.

FCC FEE UPDATE

AS WE GO TO PRESS, (AUGUST 3, 1990), THE FCC has yet to rule on the IBS-initiated Petition for Reconsideration and the Motion for Stay filed against the \$35 operator license fee imposed by the Commission effective May 21, 1990.

At last word, it looked as if the FCC would rule on the matter in August. If they do so in our favor, it will mean relief just in time for the influx of new station people in September.

The fee was deeply buried within a larger budget bill enacted by Congress. That bill required the FCC to implement the new fees, leaving no opportunity for public comment. To comply, the FCC imposed the \$35 fee on all new operator license applications beginning in late May.

An IBS mailing to member-stations was the first word broadcasters received about the new fee. Those who acted quickly were able to get a large number of last-minute applications processed before the fee became effective.

IBS then initiated a Petition for Reconsideration, filed May 23rd, asking the FCC to exempt applicants who would be using the operator's license exclusively at a noncommercial educational broadcast station. Joining IBS in the petition were the National Federation of Community Broadcasters (NFCB) and National Public Radio (NPR).

Copies of the joint petition were mailed to all IBS FM member-stations along with a request for them to file comments with the FCC. Rather than mass-duplicating a form letter for stations to sign and mail-in, IBS relied on the intelligence of stations to express their own opinions in their own words. The impact of individually-written letters would be more meaningful to the FCC. In spite of the timing, coming just when the academic year was ending, the outpouring of station support was incredible. Letters were sent to the FCC, to senators, and to congressional representatives by station managers, faculty advisors, deans of students, and college pres-

idents, all alerted by the IBS mailings.

For added impact, on June 25th, IBS, NPR and NFCB also filed a joint Motion for Stay, asking the FCC to immediately suspend the fee or to act on our Petition. As mentioned previously, Commission action was expected sometime in August.

Meanwhile, IBS has mailed to all member-stations a draft of a waiver and refund request letter that should accompany any applications filed now. Until and unless the FCC acts to exempt our applications, you will need to submit the \$35 fee with each application. Using the waiver and refund request requires the FCC to consider each application on a case-by-case basis. It may also position people for a refund of the fee should the FCC adopt the exemption we've proposed.

IBS suggests that stations wait until the last possible minute to submit any new operator license applications. The longer you can wait, the greater the possibility the FCC will have decided whether or not to issue our proposed exemption. In any case, once you complete the 3-part Form 753 and mail the top 2 parts along with your check, the bottom part becomes an "instant" temporary license. This way, you can wait until the very day the license is needed to complete and mail your application.

Remember, when you complete the application form, in Part 3 – the "instant" temporary license – you are certifying that you "have completed FCC Form 753, Parts 1 & 2, and mailed it to the FCC." Don't just fill-in the bottom part and "forget" to mail the top 2 parts with your check.

Stations should note the new address for all applications mailed with the \$35 fee. Make your check payable to the Federal Communications Commission and mail it, along with the top 2 parts of the Form 753 and a completed copy of our waiver and refund request letter to:

**Federal Communications Commission
Restricted Permit
P O Box 358295
Pittsburgh, PA 15251-5295**

This address is different than the one indicated on the current FCC Form 753. If you mail your application and check to the old address shown on the form, it will be returned to you without action. The same results will occur if you mail your application to the correct address without the \$35 check. If you're grouping your station operator license applications together in one envelope, be sure to include a separate check attached to each one. They will not accept a single check to cover multiple applications.

FCC-licensed stations must have at least one licensed operator on duty whenever the station is on the air. IBS suggests that stations do NOT take the



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chance of broadcasting without a licensed operator on duty, hoping to wait-out the \$35 license fee. A surprise FCC inspection could cause many more problems than the \$35 fee. In our opinion, taking that kind of a chance is not worth the risk to the station or its reputation.

As soon as the FCC acts on our Petition for Reconsideration and the Motion for Stay, IBS will get word to all member-stations immediately. Meanwhile, stations are welcome to check with our office by phone (914) 565-6710 for any late-breaking updates.

If your station is not an IBS member, now is a great time to join. Give us a call or write to: IBS, Box 592, Vails Gate, NY 12584-0592, and we'll send you a membership application.  *Jeff Tellis*

Broadcast Electronics, Inc. Purchased by Cirrus Technologies Inc.

Broadcast Electronics, Inc. a manufacturer of radio broadcasting equipment was purchased by Cirrus Technologies Inc., Howard M. Crow, Jr., CEO. Cirrus Technologies was formed to acquire and invest in the electronics manufacturing field. Broadcast Electronics, Inc. has been operating at 4100 N 24th Street, P O Box 3606 in Quincy Illinois for the last thirteen years.

FINDING THE RIGHT FORMAT

by Doug Rogers

“MAY YOU LIVE IN INTERESTING TIMES” IS an ancient Chinese curse. In that sense of the word it is fair to say that running a campus radio station is an *interesting* experience. Especially so when it's on the campus of a university that has, on occasion, made the *Playboy* list of top “party” schools.

Such is the case at Eastern Kentucky University in Richmond, Kentucky. A 570 AM carrier current station, WDMC is operated as a laboratory for students in the Department of Mass Communications. It has been an *interesting* experience.

WDMC is operated as a commercial station. No funding is provided by the department. It is a radio station that has all the problems of a commercial enterprise with an unpaid staff.

Until the Summer of '89, WDMC used a segmented format. This was based on the first student resident survey which indicated listener interest in the Contemporary Hit Radio (CHR), Album Oriented Rock (AOR), and Urban Contemporary (UC) formats. Station programming used a daypart split to encompass these three popular formats. For several years the number of listeners dwindled. In the Spring of '89, we found we couldn't give away free pizzas.

Something had to be done. We surveyed the dorm residents again looking for clues. The results appeared less than encouraging. We found the same results as those in the first survey. There was interest in all three formats. We considered picking just one of the three and using it to build a listener base. Unfortunately, each of the formats is the province of a well-run commercial station in the Lexington market. Since these stations have greater resources than WDMC, it seemed to be a no-win situation.

It was at this point that we noticed something odd. The questionnaires showed a wide diversity of musical tastes, but the diversity was *within* a questionnaire, not *between* questionnaires. The majority of our survey respondents liked all sorts of music. There appeared to be a great deal of cross-listenership between the open-air radio stations. Obviously, these people were not hearing everything they wanted to hear on a single station.

It only took about 30 minutes to understand the ramifications of this discovery. The Program Director, Keith Harris, said, “You know, what we're talking about here is about like what they play on *Dance Traxx*.” He was referring to the Westwood One program *American Dance Traxx* which WDMC

picked up in the Winter of '88. When we checked the playlist of the current ADT program we discovered a collection of music that drew from the upbeat sounds of all surveys. The only requirement was that it had to be danceable. We suspected we just might have a winner since there was no other station in our market programming this sound.

We spent the Spring break buying music for the new sound. A good part of our previous library was still usable, but we had to buy a sizable collection of dance mixes, the extended versions of the music played in bars and discos, to give us more individuality. Our initial production was sparse; a series of liners read over drum rolls and explosions.

We debuted the new format in the Summer of '89. One of the best advertisements was placing the speakers from our *Music Express* dance system outside the studio where passers-by could hear the new format. Slowly but surely our listenership began to pick up.

By the Fall of '89, we began to fine-tune the sound. The name *Party Traxx* replaced *Dance Traxx* in the station's liners. The word *Dance* was calling up too many visions of John Travolta in a white polyester suit. *Party* seemed to fit the ambience of the University. The positioning turned out to be perfect. The production became a bit slicker and more high-tech with phasing used to flavor the stingers and give them a distinctive sound. The music mix acquired a harder edge when we began to analyze the requests for dance music we did for various campus groups. The edge turned out to be not so much *Heavy* as *Glam-Rock*.

Another major gain in the Fall of '89 was our subscription to the Century 21 CD service. For only \$200 per month, we suddenly had all the new releases and adds in all formats and on CD's. Drawing from this wealth of music, Keith found it a snap to select dance oriented music that was on the way up.

To increase station income, we introduced *Participating Sponsorship*. With this sales plan, a maximum of 20 sponsors are accepted at any one time. The number of spots they receive is dependent on the number of sponsors for that week. Each sponsor is guaranteed a minimum of 5% of all spots aired that week. If there are only 10 sponsors for a week, each sponsor will get 10%. If there are only 5 sponsors, each gets 20% of the spots run. As a minimum we guarantee each sponsor no less than one spot every second hour. The sponsor's cost is only \$10 per week. We began selling *Participating*

Sponsorship in the Fall of '89. We don't get rich, but we have all the money we need to run the station.

WDMC still has its problems. We face the plight of all AM stations in the jockeying for listeners. Many college-age listeners have never listened to AM radio. They are unaware of the AM stations playing their music. We still have to find a way to let them know there is an AM switch on their radios. The job is easier now because we have a product that is not

available elsewhere in our market. We have a product that is distinctly collegiate in its sound and derivation. We have also found an identity.

Next year is going to be more *interesting* than ever. □

Doug Rogers is Assistant Professor of Mass Communications at Eastern Kentucky University. Doug is available as a consultant to other stations needing help with listenership and revenue problems.

DAB IS COMING

by Jeff Tellis

AS IF YOU DON'T HAVE ENOUGH PROBLEMS keeping your station programmed, staffed, equipped, and financially fit, now you've also got to think about your station becoming obsolete. That's right. New technology could mean a new and different "radio dial," totally incompatible with today's AM/FM receivers.

The buzzword is "digital" and the invasion began in the form of CD's. Few "record" companies are still making records. CD's are small, handy, and durable, but the real reason for their incredible popularity is their sound: clear, clean, crisp – noticeably better than records and most tapes. That's because CD's use digital technology.

In the digital recording process, sound is converted to a series of on-off signals, often referred to as "ones" and "zeroes." In the playback process, these basic, rapid-fire signals are converted back to sound. It's a lot easier for receivers to distinguish these simple on-off signals than the great number of variables in a conventional (analog) audio signal.

Because the digital recording and playback process eliminates problems with tape hiss, noise and digital-to-analog conversion, digital recording and playback is a lot "cleaner." Just listen to the same material from both an LP and a CD and you'll easily hear the difference.

Right now, we're transmitting CD's using analog technology. While listeners will hear a "cleaner" sound from a CD played on the air, part of the superior quality is lost in the process of analog transmission and reception. This doesn't happen when the transmission system and receiver are also digital.

That brings us to DAB – Digital Audio Broadcasting. This technology produces sound far superior to today's FM, while requiring only a fraction of today's land-based transmitter output power and spectrum space.

But, there are other possible methods of transmission and reception which are scaring the hell out of

today's AM and FM radio broadcasters. One involves direct satellite broadcasting, (DBS), a system that completely bypasses local transmitters with receivers that pick-up signals directly from a satellite.

The other method – probably more imminent – involves satellite distribution to cable systems now serving listeners' homes. We're talking about 30 channels of commercial-free music, each formatted to a specific audience's taste at a cost of approximately \$7 a month for the whole package of 30 channels.

Regardless of which transmission methods are selected, DAB will use a totally different "radio dial" (or band of frequencies) from present AM or FM stations. That means the necessity for new receivers for home, portable, and car use. It also means existing AM and FM receivers may become obsolete.

The European Broadcasting Union (EBU) has already invested millions of dollars in technical development. A Canadian demonstration took place this Summer using a European-designed system. The modified transmitter used an effective radiated power of 100 watts per channel for 16 DAB channels, and achieved at least equal coverage to an FM station at the same site, using a higher antenna and 3,000 watts of power. The DAB sound quality was noticeably superior and had none of the multipath distortion problems usually found with FM reception in urban areas.

Perhaps this gives you some idea of why today's radio broadcasters are concerned. Representing commercial radio broadcasters, the National Association of Broadcasters (NAB) is supporting the idea of DAB, but favors the use of terrestrial-based transmitters to preserve the "localism" they believe is important to listeners. Hoping to get a stake in any new DAB system adopted, they are strongly opposed to a satellite-delivery system that will bypass local broadcasters.

For the time being, the major bottleneck to the im-

plementation of DAB involves setting aside the needed spectrum space on the dial. Getting the required international agreements on these issues will be a lengthy and complex process. Different nations have different priorities and varying broadcast systems now in place. We're estimating at least another 3 years before the spectrum questions are resolved.

While the process of merging these political and technical needs drags on, technology is moving ahead quickly. DAB via cable is now being developed and may be available to listeners within the next year. Fiber-optic cables may provide another method of distribution in the future.

Technically it's possible for DAB to operate side-by-side with today's FM and AM stations, assuming other spectrum space will be reserved for its use. However, we've seen the impact that CD's had on

records and FM sound quality had on AM radio. With DAB quality surpassing FM, using less transmitting power, and possibly bypassing local transmitters, today's radio broadcast stations have every reason to be both interested and concerned about the potential obsolescence of their station.

There is little doubt that DAB is on the way, probably in multiple forms. It's no longer a matter of "if", but "when" and, most importantly, "how".

Too often, "long-range planning" at a college station is defined in terms of who's doing the next airshift. We need to pay more attention to changes expected in the next 5 or 10 years. DAB is something that can't be ignored. If we don't stake out our claim for space in the DAB world, our stations may be left behind by this changing technology. If you need to be convinced, just look over the selection of LP's at your local "record" store. ☐

RECORD ERUPTION at Oregon State

BORROWING AND EXPANDING UPON A promotional idea used by KCMU at the University of Washington, KBVR-FM at Oregon State University attracts attention with a weekly *Record Eruption*.

KBVR-FM is located on the third floor of a building on the main street of the campus. During the academic term, every Friday at 12:30 p.m., for seven minutes, a torrent of records, tapes, CD's, posters and guest passes to local concerts "erupts" from a window in the station's on-air studio, falling toward a crowd of people waiting to snap up the prizes. Further excitement is generated by a station announcer.

To promote the weekly event, DJ's play a carted spot once each air shift. KBVR-FM air shifts are 2 to 4 hours long. Every Friday, signs are put up along the main street of the campus directing people to

the "eruption" site.

The first "eruption" in the 1990 Spring semester drew about 50 people. Since then, crowd size has varied with weather conditions.

Some practical adaptations were made to smooth things out. For example, record sleeves and CD jewel box cases are thrown instead of actual vinyl and CD's. Faculty Advisor, Ann Robinson said, "A test run convinced us that records cannot survive a 30-foot fall, no matter how gently they are dropped."

Since most concert tickets actually mean being put on the guest list, posters with messages on them are dropped in lieu of tickets. Prizes are then claimed at the station immediately after the eruption.

Discount coupons from local stores are also dropped. Since KBVR-FM is a licensed, noncommercial station, on-air credit is only given if the donation is made with no strings attached. ☐



Rick Leigh, left, Assistant Professor of Communication Arts at Georgetown College in Georgetown, Kentucky, is now producing Ted Fleischaker's *The Big Band Stand*.

The program is delivered via satellite to NPR stations and is also offered to stations in the Texas-based Longhorn Radio Network.

CARRIER CURRENT COUPLING

by Richard Crompton, LPB Inc.

The engineering and technical details of carrier current technology remain a mystery to most people including those involved with carrier current stations. Those who designed and installed the original system are usually long gone from the campus. Documentation has often been lost. Many carrier current stations have not kept up with the changing technology.

Not knowing there are now ways to produce a better signal, some carrier current stations still inflict poor reception and a loud hum on their listeners. Fortunately, there are ways to improve an existing carrier current system.

The following article was written by Richard Crompton, founder and past President of LPB, Inc. and one of the country's leading experts on carrier current technology. It deals with a topic at the heart of a carrier current system's performance: power line coupling – effectively moving the signal from the transmitter into the antenna.

THIS IS A REVIEW OF THE BASIC REQUIREMENTS of power line coupling for carrier current broadcasting and the development of Transmitter Coupling Unit (TCU) technology. It was written to provide a basic understanding of coupling a carrier current transmitter with an AC power line and the development of the sophisticated and effective devices available today.

Carrier current broadcasting uses the low voltage AC power wiring within a building as an antenna. AC electrical wiring is not an ideal antenna. The only consistent design feature we can expect from one building to another is that all were designed for minimum installation cost.

AC Wiring as an Antenna

The AC electrical wiring in a building is a very unwilling, unpredictable, and inefficient antenna. Its characteristics change with the time of day when lighting and other loads are switched on and off. There is, however, one compelling aspect of the AC electrical wiring which forces us to seriously consider making it serve as an antenna; the AC wiring covers the entire building like a spiderweb. It is seldom possible to be more than a few feet from this wiring. The fact that a receiver will always be so close to this antenna suggests that little transmitter power will be needed to provide a strong signal to the listeners. If this isn't convincing, the clincher is

the additional fact that most receivers are plugged into the AC wiring, therefore physically connected to the antenna.

Heating pipes, intercom lines, emergency lighting wiring, air ducts, and many other kinds of metallic conductors have been suggested as a broadcast antenna within buildings, but none of them covers a building as completely as the AC electrical wiring. In occasional situations, one of the alternates might prove better, but we have found in three decades of experience in carrier current that AC wiring makes the best antenna in 99.9% of all applications.

Transmitter Wiring Interface

Let's say we have a small transmitter operating in the low end of the broadcast band producing 30 watts at 640 kHz. We also have the building's AC electrical wiring which carries 110V 60 Hz energy. To use the wiring as an antenna, we have to efficiently transfer the 30 watts of 640 kHz energy from the transmitter into the AC wiring, while at the same time keeping 110V out of the transmitter.

The broadcast industry standard of transmitter output impedance is 50 ohms, unbalanced with respect to ground. The maximum power transfer theorem in electrical engineering requires that the source and load impedances be matched to obtain maximum power transfer. To design a matching network between the transmitter and the electrical wiring, we need to know the load impedance, *i.e.*, the impedance of the specific AC wiring system at the coupling point at 640 kHz. Each building is different, and the impedance will change a lot when lights and appliances are turned on and off.

Consider the problem of using a conventional impedance bridge to measure the power impedance at 640 kHz. Because of the 110V AC in the wiring, how can you connect the bridge to the power line without wiping out the bridge and killing yourself? Solving this puzzle is the challenging task of Transmitter Coupling Unit design.

LPB introduced the first TCU in 1960. It was a very simple device, consisting of only 110V isolation capacitors and protective fuses. With the Mark I & II transmitters of that day, matching for maximum power transfer was crudely accomplished at the transmitter output by using approximation. The output coupling link on the output tank coil provided an output at 5 ohms which was an approximation of the typical power line load.

Another major problem was the lack of good 60 Hz rejection at the transmitter output. The only 60 Hz rejection mechanism was the frequency differential impedance of the isolation capacitors, *i.e.*, since the reactance of a capacitor is inversely proportional to frequency, the 0.1 μ fd isolation capacitors displayed 60 Hz reactance which is almost 11,000 times that at 640 kHz. This approach is in the right direction, but not good enough. Depending upon how the transmitter was connected to the power wiring, it was possible that enough 60 Hz voltage got back into the transmitter power amplifier to cause 60 Hz modulation, hence a buzz was heard on many carrier current stations which was intolerable to listeners. This is the origin of the once oft-heard claim

'... couldn't be done without hum.

This is simply not true today."

that carrier current broadcasting couldn't be done without hum. This is simply not true today.

Another problem was the continually changing load impedance that the AC wiring presented to the transmitter. These changes were reflected back into the output tuning network of the transmitter, causing detuning and reduction of power output. Resistive swamping techniques were often used in those days. The typical solution was to place a power resistor, of resistance several times the *nominal* power line resistive component, in series with the power wiring load. This way, only a fraction of the power impedance change component was reflected back into the transmitter. Detuning was reduced but not eliminated. This might have reduced the detuning problem to a tolerable level, but it also meant losing the majority of the transmitter output power. It was a partial but expensive solution. Many colleges had to build 50 or 100 watt transmitters when they needed only 5 or 10 *effective* watts.

Second Generation Goes Ferrites

Second generation TCU's contained the then-new technology of ferrite transformer core materials to produce broad-band matching networks. By devious methods, we made indirect measurements of the power line impedance and found typical values of $R \pm jX$ at AM broadcast band frequencies. Typical values of R were from 0.1 to 10 ohms, and the $\pm jX$ component was anything up to 50 ohms and almost always inductive, *i.e.*, $+jX$. So the problem was shown to be one of matching from the 50 ohm ($50 \pm j0$) transmitter output to loads in the range of 0.1 to 10 ohms, if they would remain constant. The problem was also one of cancelling out an inductive

reactance which may range from zero to nearly 50 ohms. The resistive matching, along with the time-variable nature of it, was neatly solved with a broad-band torroidal ferrite matching transformer which was wound to offer a range of impedance taps. The inductive reactance property of the power wiring could obviously be cancelled using equal-and-opposite X , *i.e.*, $-jX$ series capacitors of values in the capacitive reactance range of nil to 10 ohms or greater, at frequencies from 530 to 1600 kHz.

How Is This Implemented?

Having decided what must be done, the job was to figure out how to do it. How do we pick the correct impedance matching tap on the transformer and a capacitor with a correct value to cancel the power line inductance? A workable trial-and-error scheme evolved, using the plate current meter in common use with the tube-type transmitters of that time, to judge when the best matching tap and capacitor values had been chosen. It worked rather well, but required patience and some intuitive skills to understand the behavior of the equipment, and especially, how to interpret the readings from the plate current meter.

One problem was that the high RF currents flowing in this unique low impedance application indicated there was only one style of capacitor which could handle the job without physically burning up; the mica capacitors of industry-standard package style DM-19 or larger. These capacitors have a larger contact plating area where the wires contact the capacitor plates. They can handle high RF current without causing internal overheating and the consequent major shift of capacitance value. DM-19 and larger package styles (which are high voltage micas) are more expensive and often difficult to find.

To keep down the cost of the TCU and recognizing that most carrier current systems would install several TCU's, the capacitors were not included in the TCU, but packaged separately as an easily used Test Set. The idea was that the user might have several TCU's, but would need to buy only one Test Set. We tried to keep the prices down. Once the Test Set defined the value of the capacitor required, the user could buy it from our quantity stocks and insert it at the screw terminals provided in the TCU. We bought these rather rare capacitors in quantity to maintain availability and to keep them affordable.

As it turned out, few stations bothered to buy the Test Set, very few used it, most quickly lost it, and damned few ever bothered to get the correct capacitors. While the idea seemed a good one, it didn't work well in practice. The result was that a lot of stations complained about the performance of their

carrier current systems which had never been installed correctly.

Redesigning the TCU for Solid-State

When we first introduced solid-state transmitters in the early 70's, the design no longer required a plate current meter because of the use of a broad-band linear final amplifier stage. This broad-band linear final offered a number of advantages, including immunity from load impedance changes and the ability to continuously vary the transmitter power output.

The problem was how to best provide a means of indicating a good match to the power wiring. This led to the third generation TCU. For the first time, the TCU combined the entire matching network, test set, and indicating instrument in a single, foolproof package. There was nothing to be forgotten, lost, or ignored. Everything was handed to the user in one convenient package. The inside front cover of the model T-8 TCU contained a simple how-to-do-it instruction sheet telling how to achieve a good match. Even loss of the Instruction Manual, (a guaranteed occurrence at a college station within one semester), was no reason to have a problem with matching! This was a major turning point for carrier current broadcasting because it eliminated most user problems. This was clearly evident from the marked reduction of calls and letters from stations seeking assistance in matching.

The T-8 Transmitter Coupling Unit incorporated a ferrite toroidal impedance matching network with 5 impedance options, a two-decade capacitor bank offering about 100 value options for cancelling AC line inductance, the usual AC line isolation capacitors, (rated at 600V to allow use on AC systems of up to 480V), protective fuses, and a dual-sensitivity Standing Wave (VSWR) Bridge to make accurate matching with the AC system an easy matter.

The T-8 was entirely self-contained. By careful choice of the particular ferrite material used in the toroidal impedance matching network, in excess of 70 dB of isolation, (a voltage ratio of over 3,000-to-1), of the transmitter 60 Hz AC line energy was achieved from the toroid alone, in addition to the frequency-differential reactance of the coupling capacitors mentioned earlier. The ferrite material imposes limitations on the transmitter power level the TCU can accept without excessive heating losses. The T-8 was designed for 25 watts, which matched the solid-state transmitters of that period.

Additional Refinements

Though the T-8 TCU was a major step in the right direction, experience showed that the AC systems of a few buildings, mostly on the West Coast, displayed

a capacitive reactance property that the TCU's were not designed to handle. While it was impractical to include a form of variable inductance in the TCU to deal with this infrequent situation, it was practical and desirable to include access terminals for ease of capacitive reactance correction when it was needed.


Given the improved capability of accurate matching with the VSWR bridge in the T-8, it was also noted that additional finesse in impedance matching would be helpful, and would allow added flexibility to accurately accommodate a wider range of AC wiring systems. This dictated a two-decade impedance matching network, much like the two-decade capacitor system for inductance cancellation. The result was an increase from 5 to 21 impedance steps available for accurate matching. The development of more sophisticated bifilar and penta-filar techniques for winding the ferrite torroids in the impedance matching network also offered even greater 60 Hz isolation of the transmitter. This added efficiency also afforded a 25% increase in the transmitter power handling capacity of the TCU.

Direct Calibration of VSWR and Power

A custom VSWR bridge meter face was designed to allow an actual quantitative measurement of matching accuracy. The meter circuit was redesigned to provide switching to permit the direct reading of actual transmitter power being delivered to the TCU, in watts. The meter face was designed for direct readout. The ability to directly read actual power being delivered to the building load, combined with the continuously variable power output of solid-state transmitters, is invaluable to the design of a carrier current transmission system serving several buildings. (see LPB Tech Note, *Carrier Current Broadcasting*, for a detailed discussion.)

The results of this continued study was LPB's fourth generation TCU, the model TCU-30.

Designed for the needs of today's solid-state transmitters, it also supports older, tube-type transmitters, many hundreds of which continue to operate faithfully. The TCU-30 with its dual sensitivity range, may be used equally well with 5-watt transmitters, current solid-state, or the older tube-type units.

The T-8 is a good TCU, and the TCU-30 is better. If your carrier current transmission system uses any very early model TCU, a replacement is a long overdue and good investment in improved performance. It could be the best single investment you could make in your carrier current system. 

Richard Crompton is founder and past President of LPB, Inc., a leading manufacturer and vendor of studio and transmitting equipment. AS a consultant, he specializes in carrier current technology.

PC-LOGGER

Generating Program Logs With An MS-DOS Computer

by David E. Reese, Assistant Professor,
Department of Communications
John Carroll University

WHILE THE FCC RESCINDED THE NEED TO legally keep a program log in the early 1980's, most radio stations, both commercial and noncommercial, still utilize one. Not only does it provide some record of what has been aired on the station, but it also gives the on-air announcer a guide to what material, including promotional announcements or public service announcements, should be aired and when it should be aired.

Program logs were originally handwritten or typed, usually on a preprinted form. Logging was a time intensive job, often consuming a good portion of the traffic manager's work day. The computer era is making a big change in this job. What once took hours can now be completed in a matter of minutes.

There are many computer programs available for producing a program log, but they are almost all geared to the commercial station so that they not only produce logs, but also interface with billing and accounting aspects of the traffic job. In addition, most commercial logging programs cost more than the college station can afford and they just do much more than the average college radio station needs.

With that in mind, *PC-Logger* was written as a basic logging program for the college station. The log it will produce is shown in Figure 1, page 14. The header produced for each page includes station call letters, page number, day and date, and columns for "start time," "program length," and "program title." The program puts three "clock hours" on a letter-sized sheet of paper.

System Requirements

PC-Logger is written for GW-Basic and an IBM compatible computer. Our station uses an Epson Equity I+ with the Epson FX-86E printer. While we use a preprinted form for the log pages, this "generic" version of the program is designed to use standard 8½ X 11 inch, single sheets of paper. Tractor-fed paper should work, but the log will be longer since we normally print on both sides of each page. The current program spacing works well with the Epson printer, including the top margin with the automatic sheet-feed system. Other printers should be easily adaptable.

The program is designed to print a standard hour which includes four stop sets plus a legal ID at the top of the hour as shown in Figure 1. In addition, a sign-on and sign-off hour is included and program hours can be substituted instead of the standard hour. The program will start at the 6 a.m. hour and is designed to end at 12 midnight. Anyone proficient in Basic programming will be able to adjust this programming day and standard hour to the "clock" used at their station.

The standard hour includes a mix of community and campus news, weather, promos, PSA's, and the legal ID. The sign-on and sign-off hours are just slightly adjusted to accommodate the sign-on/off procedures and the program hours allow the scheduling of half-hour or hour-long programs. We use this feature for our public affairs programs.

The station promos and PSA's are loaded into the computer program and then are rotated on an equal basis. The program allows fifteen 30-second promos, fifteen 60-second promos, and an equal number of PSA's. Again, this could be adjusted to fit your situation. If we have fewer than this number in any category, we leave the generic "label" in the program and let the announcer play any one in the rack when this comes up on the log. *PC-Logger* will randomly select items from the entire list in each category, without repeating, until it has selected everything in the category.

The 30-minute and 60-minute program names are also loaded into the computer program and can be selected as needed.

How *PC-Logger* Operates

PC-Logger is menu driven and simple to operate. Once your computer is on and you have the DOS prompt, load and run GW-Basic. Now load and run *PC-Logger*. The first menu screen asks you to enter your station call letters. Before entering information in *PC-Logger*, you must press the "Caps Lock" key. You will see a short opening screen followed by the next menus.

The next few screens give you a chance to check the PSA's, promos, and programs that you have listed in *PC-Logger* with those that you actually have

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in your on-air studio. Obviously, your traffic manager should see that these match.

A menu screen now allows you to choose between a "full" or a "partial" log. Usually, you will be producing a full log, but the partial log feature lets you "redo" selected pages if you made an error while producing a "full" log. The next screen is a reminder to be sure there is paper in the printer and that the printer is on-line.

Log production begins with a screen asking you to enter the month and date for the new log. The computer will add the year from its internal clock. (Watch out for an incorrect year on logs prepared for January in December.) The next screen asks for the day of the week.

PC-Logger then allows the traffic manager to enter an optional line of text. This option is available for each hour. Several standard messages are included such as "take meter readings" or "put away records", but you can add a special message or choose not to include a message at all. If you choose not to add a message, a "no message this hour" label will be printed on the log.

The next menu screen asks if you want to insert the name of the program. If you enter "Y" for yes, you can enter a program name for that hour. Since most music shows on our station have been given names by their programmer, this feature allows us to

personalize the log for these shows. If you enter "N" for no, the program will print a generic "music program" label.

The next screen allows you to select the type of hour, standard, sign-on, sign-off, or program. The standard hour starts at the top of the hour with two minutes of "campus and community news" followed by "weather" and a 30-second promo. The next stop set in the standard hour is a single 60-second PSA at eighteen minutes after the hour. Starting at twenty-nine after the hour, *PC-Logger* lists "weather," a 30-second PSA, and a 30-second promo. A single 60-second promo is logged at a quarter till the hour and the legal ID is logged at ten seconds before the top of the hour. This standard hour reflects our typical "clock" that all our music formats follow. It can easily be changed to reflect your station "clock". Remember that PSA's and promos are rotated automatically throughout the day.

The sign-on and sign-off hours change either the beginning or end of the standard hour to reflect a one minute sign-on/off procedure.

If a program hour is selected, a menu screen lets you select which program you want to schedule and where to schedule it. A thirty-minute program can be placed to start at the top or bottom of the hour and two thirty-minute programs fill the hour. A sixty-minute program can only start at the top of the hour.

Once any type of hour has been selected, it will print out and then a menu screen will ask if you need to log another hour. If the paper must be changed in the printer, you will get a "beep" reminder. Answering "Y" continues the program by returning to the "message line" menu screen. If this is the start of a new page or new log, a heading will be automatically printed. Answering "N" ends the program. After the eleven o'clock hour prints, you are prompted to do another log if you want. Answering "R" returns you to the "full/partial log" menu screen after resetting some of the program variables.

Notes

Though *PC-Logger* may not be ideal for every college radio station, it will prove valuable to many. *PC-Logger* can be used "as is" or it can be re-programmed in any way that works for your station.

If you want a free copy of the program script, send your request to IBS, Box 592, Vails Gate, NY 12584-0592. If you'd rather not type the script yourself, send a blank PC disk and return postage to John Carroll University, Att: David E. Reese, Depart-

ment of Communications, 20700 North Park Blvd., University Heights, OH 44118. Questions about or problems with *PC-Logger* should be sent to David Reese also.

While *PC Logger* was written for MS-DOS computer systems, we're sure there are similar programs being used at stations with Macintosh equipment. In fact, we get a lot of inquiries from stations about the availability of Mac and MS-DOS logging, PSA copy, record library and listener pledge (radiothon) programs.

If you are using a computerized logging, library, PSA copy, or fundraising program, whether you bought it commercially or it was written for your station, let us know how it works and where other stations can get a copy. It's a lot easier to share the tools that already exist than for each station to have to "reinvent the wheel" on its own.


If your station is using a computer program that helps cut down time spent at a job, tell us here at IBS, Box 592, Vails Gate, NY 12584-0592, so we can spread the word and help other stations take advantage of these great time-saving programs. 

Figure 1 Sample printout for two hours in station log

WDER-FM PROGRAM LOG			
PAGE 1		FRIDAY-SEPTEMBER 21, 1990	
START TIME	PROGRAM LENGTH	PROGRAM TITLE	
TURN ON TRANSMITTER BY 5:55 AM THE SONRISE SHOW			
6	:00:00	:60	SIGN-ON
6	:01:00	:10	STATION IDENTIFICATION
6	:18:00	:60	60 SECOND PSA
6	:29:00	:30	WEATHER
6	:29:30	:30	30 SECOND PSA
6	:30:00	:30	30 SECOND PROMO
6	:45:00	:60	60 SECOND PROMO
6	:59:50	:10	STATION IDENTIFICATION
TAKE METER READINGS THE SONRISE SHOW			
7	:00:00	2:00	CAMPUS & COMMUNITY EVENTS
7	:02:00	:30	WEATHER
7	:02:30	:30	30 SECOND PROMO
7	:18:00	:60	60 SECOND PSA
7	:29:00	:30	WEATHER
7	:29:30	:30	30 SECOND PSA
7	:30:00	:30	30 SECOND PROMO
7	:45:00	:60	60 SECOND PROMO
7	:59:50	:10	STATION IDENTIFICATION

AP NEWSDESK FIRST AT WONC-FM

WITH THE ADDITION OF SHADOW TRAFFIC and the new Associated Press NewsDesk computer program, one of the few things that sets WONC-FM 89 apart from professional radio stations is the staff ... North Central College students.

North Central, located in Naperville, Illinois, was the first of many college radio station in the United States to install the AP service, a computerized news editing system designed for broadcast journalism.

The addition of the new computer system is part of an ongoing effort by John Madormo, General Manager, to create an environment similar to professional radio stations.

"We're the first college radio station to utilize AP NewsDesk," Madormo said, "and we're the only college station that I know of in the midwest that does traffic reports."

Madormo said the new computerized wire service designed for broadcast journalism is an important addition for the station. The new system allows a journalist to preview, edit, write, rewrite, and localize stories on the computer, and then print or file them with an AP field office for syndication.

"It's essential for students to learn to write, rewrite and edit news stories if they are interested in a career in radio news," Madormo said. "They have to learn to do those things if they want to survive in the business."

With the professional equipment and facilities available at North Central and the small school enrollment, Madormo says that WONC is a great opportunity for students at the college. Each year, more and more students are taking advantage of the opportunity, which is one reason why Madormo is happy to have added Shadow Traffic to the station's news services.

"The traffic service opened up more than 60 slots for traffic positions at the station," he said. "Suburban oriented traffic reports are read in slots from 6 to 9 a.m. and 3 to 6 p.m. and give students the feeling of doing what goes on at the professional radio stations they listen to."

The North Central students have taken an intense interest in the news department at WONC, and the new NewsDesk service has only increased that interest. WONC news director Scott Wehrli says the most important benefit of the system for the college is that it increases the marketability of the North Central students.

"With NewsDesk growing in acceptance and popularity among the commercial media, the demand



News Director, Scott Wehrli, left, Asst. News Director, Jeff Zoephel, and Mark Stuenkel, seated examine the new WONC-FM 89 computerized news editing system.

for NewsDesk trained personnel is increasing while the number of trained personnel remains small," Wehrli said. "This gives North Central students the potential to become a rare commodity in an extremely competitive industry."

Not only does the new system update the state-of-the-art equipment installed at WONC, in the long run it is expected to save the station a lot of money. The printer that WONC previously used ran 24 hours a day and used two boxes of paper and three ribbons each week. Wehrli says taking into account the paper and ribbons savings, the new system will pay for itself within a year. WONC purchased the new equipment with \$2,700 of allocated funds from the North Central Student Association. □

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STARING AT THE SUN Without Sunglasses

Preventing Radio Burnout by Steven O. Shields

AT FIRST GLANCE, YOU MAY NOT SEE MUCH connection between a nineteenth-century Belgian physicist's tragic experiment and a career in radio announcing, but in Joseph Plateau's experience lies a partial metaphor for life in the radio arena.

You may remember Plateau from film class as the inventor of a stroboscopic device in 1832 called the Phenakistiscope. Fascinated with optical phenomena, Plateau wanted to know what would happen if he stared directly at the sun for long periods of time.

Plateau, of course, paid a high price for satisfying his misguided sense of scientific curiosity. He was blinded, his eyesight literally burned out.

Just as Plateau learned, too late, how harsh a price can be exacted for failing to take sensible precautions against incredibly powerful natural phenomena, so it is that many announcers learn, too late, to protect themselves from the perils of radio career burnout. By anticipating the possibility of career burnout now, at the beginning of your career, you can develop a plan to protect yourself before any damage is done.

"Step right in – the BOSS will consume you now."

The terms "burnout" and "burnout stress syndrome" (BOSS) are relatively recent arrivals on the psychological research landscape, dating back only to the mid-1970's. As with most new concepts, researchers are still trying to sort out exactly how burnout occurs, why it seems to occur more strongly in some settings than in others, and why some individuals are more susceptible to it than others¹.

Briefly, researchers consider burnout "a unique type of stress reaction experienced by people who have jobs that require extensive contact with other people"². The so-called "human services" or "helping professions" such as teaching, nursing, and law enforcement are often the target of burnout research, since the people these workers contact are usually in some state of need which, in turn, creates special pressures and even dependencies on those helping them³.

Although it isn't a perfect conceptual fit, I would argue that radio announcing has some attributes of the helping professions. As a radio entertainer, you provide a service to the listening audience by helping them escape from the monotony of daily

life. You create a fantasy world of music and laughter that is fun for the listener to experience.

Radio is unique among the mass media in its ability to have instantaneous, direct interaction with its audience. Radio station phone lines provide feedback that mixes praise and complaints with unending requests. Ask any experienced jock if they haven't had at least a few suicide calls to handle during their career, or had nightly calls from the same listeners who just wanted to have "someone to talk to." It becomes clear that radio station phone lines hold the potential to propel announcers, reluctantly or not, into a quasi-helping professional status.

Furthermore, movies like *Play Misty For Me* or TV shows like *Night Caller* are so poignant because stuff like that really does happen. There really are nutty folks out there who will sometimes go to any lengths to talk to you or, as in the late talk-show host Allen Berg's case, silence you.

Stages of Radio Burnout

Researchers think of burnout as a psychological process that occurs in a series of stages, some of which may overlap.

The first stage is characterized by emotional exhaustion. You feel used-up, drained, unable to bear being on the air another day. You're tired all the time, and feel lethargic, so you tone down that rough edge of on-air excitement and fool yourself into thinking that you're sounding smoother and "more professional." What you really sound is tired or, worse, bored, since your liners and your ad-libs sound equally mechanical.

And show prep? Forget it. Too much work, and nobody cares anyway.

In the second stage, you try to cope by putting some psychological distance between yourself and others.

In this stage, you may stop answering the request lines ... a ramp goes by and you segue because you have nothing worth saying anyway ... you turn down the studio monitors completely, instead monitoring the station through the headphones parked beneath the console, headphones you seldom want to wear anymore. And, maybe, you're becoming cynical about radio, doing just enough to get by, and no more. You just want to do your show and get the hell out of there as quickly as possible. And you

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The final aspect of burnout is a feeling of low personal accomplishment.

You know the old saying, the bigger they are, the harder they fall? It holds true for radio career fantasies, too. If you started your career with the absolute certainty that you were going to be in a major market or at a particular station by age twenty-something, it can be a devastating blow when the everyday events of radio appear to be insurmountable obstacles to your progress.

Stations you always dreamed of working for get sold or change formats and call letters. Key people you know get blown out or leave over "philosophical differences" with new management. It isn't your fault for not predicting those changes or not getting there "in time", but you take the responsibility and wind up feeling you are a failure.

The consequences of burnout, once it runs this far, can be devastating. In addition to the low-quality job you're doing on the air, you're making it hard on the rest of the airstaff, trashing the station, the management, the format, anything. You consider getting off the air completely; maybe it's time to go into programming. Maybe all the money really is in sales. Your personal relationships are heading south, too, since all you do is complain about your job and

drink too much.

This is more than just "having a bad day." By now, you're one of the wounded.

Some Thoughts on Burnout Prevention

As with most phenomena, burnout is not something that happens to individuals in a vacuum. BOSS is a complex interplay of individual personalities with various attributes of organizations. Researchers such as Ayala Pines (1982) have broken down BOSS into at least 28 variables, some personal, some organizational, that should be considered in devising effective burnout prevention. As an announcer, you'll find changing organizational attributes difficult to do. Perhaps the best you can do is search for stations to work for that seem relatively enlightened. At such stations, maybe the PD allows you some choice in the programming of your show if for no other reason than to establish a shared sense of proprietorship. Maybe aircheck critique sessions are morale builders that focus on what the jock is doing right instead of punitive "crocodile sessions." Maybe the all-night guy gets an occasional promo to produce, instead of always getting dubs and tags.

Maybe such an enlightened station is not only happy to trade out for memberships in the local country club for the sales staff, but is willing to trade out for wellness programs or reduced rates at the

local health club for the staff too.

But while you're searching for this corporate Shangri-La, what can you do as an individual to protect yourself? Here are some thoughts:

1. First, keep from becoming exhausted from overwork. Especially, be wary of becoming "a human doormat."

You know the "human doormat." You may have one at your station. They aren't the most talented jock, but there's no mistaking their "dedication," since they willingly volunteer to work nearly any shift that needs filling. They believe that if they do, the PD will "like" them and therefore promote them.

While it's nice to be flexible and cooperative if the station is truly in a pinch, I have found in my own experience that PDs usually don't think much of "human doormats." When you look at it from their standpoint, you can see why. Sure, it's nice to be able to plug those airshift holes with ease, but when it's the same person doing four shifts in one weekend, with six hours of sleep between them, guess what they sound like?

Don't let your PD make you into a human sacrifice to appease the scheduling god without realizing that you're being used up that much faster.

"But I need the extra hours," you say. No you don't. You need the extra dollars. There is a difference. What about freelancing? Working in a dance club? Maybe there are some ways to utilize your talents that won't require you to stare at the same old cart decks all the time.

2. Don't make the mistake of thinking you are some kind of social worker for the folks on the request lines.

This is tricky to do: You don't want to be rude to people, but aren't they being rude to you with their endless hanging on and tales of personal woe? Of course, a genuine cry for help should be answered, but you probably weren't hired to be a personal counselor.

One solution might be for your station to have three-way connections to the local crisis intervention center, so you can transfer these people to someone whose specialty is professional care-giving.

3. Don't stare at the radio sun without sunglasses.

Don't make the mistake of focusing all of your attention on the radio station.

When you're off the air, do you hang around the station cutting up airchecks with nowhere else to go? Are all your friends in radio or records? Is the extent of your social life inviting one of your listeners to meet you at a station appearance? If so, you need to develop a life away from the radio station.

4. Take care of your health and learn relaxation techniques as an alternative to feeling physically worn-down.

There are all sorts of relaxation therapies that work for people. Some like yoga, some like meditating, some have found biofeedback helpful. It can be a big help at especially stressful moments to know how to relax your way through them instead of tensing up as you "tough" your way through. You can do either, but the former is far kinder to you in the long run.

Aerobic exercise is a wonderful stress reliever and a terrific mood elevator. It's a far better alternative to turning the control room into a giant ashtray, or becoming the Pillsbury doughboy from scarfing down one candy bar, soda, and pizza after another.

5. Finally, think about what your radio announcing career is leading to. Consider it a jumping-off point, not a final destination.

Chances are that after ten years on the air, you will have accomplished your original goals in radio, those that you may just now be setting. You may be ready for a new challenge. Do you remain on the air, transforming your old shtick into something more dynamic now that you're finally out of the small and medium markets? Do you head off to programming with some new promotional and programming concepts that will get you noticed throughout the industry? Do you find something related to radio that allows you to stay in touch with the magic but is more suitable for your unique talents and disposition?

Whatever direction you choose, it's important to be able to make the choice based on good qualifications. This is the point where your college degree will be worth every penny you ever spent on it. It is an entree to all sorts of options if announcing runs its course for you. If you remain in announcing, then you are just that much more in tune with society.

As with many maladies, prevention is the key to dealing with burnout. The advice of Smokey the Bear works here, too. It's up to you to prevent fires in your own personal career forest. Good luck! ☐

After a ten-year announcing career, Steven Shields, Ph.D. survived radio burnout to become an assistant professor in the Department of Communication and Administrative Director of WSUW-FM at the University of Wisconsin-Whitewater.

¹Maslach, C. (1982). understanding burnout: Definitional issues in analyzing a complex phenomenon. In W. S. Paine (Ed.), *Job Stress and Burnout: Research, Theory, and Intervention Perspectives*. Beverly Hills, CA: Sage.

²Jackson, S. E. (1984). Organizational practices for preventing burnout. In A. S. Sethi & R. S. Schuler (Eds.), *Handbook of Organizational Stress Coping Strategies*. Cambridge, MA: Ballinger.

³Jackson, p. 90. See more references Page 20.

COMPANY LINES

News, Information, Hints, and Tips

From Companies Supplying Equipment and Services to College Radio

CASSETTE-EATING MACHINES

Tapes have become the dominant recording medium at most stations. Sturdy and convenient, the capabilities of cassettes have improved steadily to the point where their quality can rival that of reel-to-reel.

Perhaps because of their ease of use, we have come to take cassettes for granted. We slam them around in the studio or on location. We don't take proper care of portable cassette machines and decks and then wonder why we have problems.

Here is a tip that may help when your machines start eating your cassettes:

Symptoms

The edges of the tape become wrinkled or creased causing the recordings to sound muddy or garbled.

Tapes become wound around the capstan on a cassette deck causing the cassette to lock up and jam.

Causes

If the pressure roller has become slick from a residue of oxide from tapes, or has worn unevenly, or has too much or too little pressure against the capstan, it will allow the tape to skew up and down between the pressure roller and the capstan. If the skewing becomes excessive, the tape can jump over the capstan to the wrong side and then can be wound around the capstan until the accumulated tape is large enough to bind against the cassette casing.

Solutions

After playing 25-50 tapes, clean the pressure roller, capstan, and tape heads with a cotton swab saturated with a good tape machine cleaner such as ProKleen.

Replace worn pressure rollers.

Have your service technician adjust the pressure roller tension.

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CARE & HANDLING OF MAGNETIC TAPE

Whether your station depends on cassettes or tape for recording, care is required in its handling and storage. Here is some advice that will prevent tape damage and ensure your tape will last a long time. This means you won't lose your expensive tape productions or wear out expensive recording equipment.

Dirt

Always store tape in a dust-proof container when not in use. This protects the tape from dust particles, which can cause dropouts.

Never touch the tape surface or tape pack. Even touching the back side of the tape can transfer dirt to the next oxide layer when the tape is packed on the reel. If touching the tape cannot be avoided, use lint-free gloves.

Avoid smoking or eating in the tape area. Smoke and food particles can contaminate the tape and ashes can cause damage.

Loose tape ends should not trail on or near the floor. Always use approved hold-down tabs, even when the tape is in its container.

Clean the entire tape path after each pass, if possible, using Kimwipes® and an approved solvent. Definitely clean after each 8-hour shift.

Physical Damage

Handle tape reels only by the hub. Bent flanges should be replaced to avoid tape edge damage, and tape should be rewound to achieve a smooth pack.

Trim damaged tape ends to avoid depositing tape coating on the tape transport and recording heads.

Never stack tapes on top of one another. This affects the tape wrap and bends the flanges. Shelf tapes vertically so they will be supported by the hub.

Don't put tapes on top of tape drives or test equipment. This interferes with the equipment's cooling system and exposes the tape to heat and dust.

Environment

Always store and use tape in an ideal environment with correct temperature and humidity: 70°F (21°C) and 40% relative humidity in the tape room; 50°F (10°C) and less than 40% relative humidity in storage.

Allow eight hours for tapes to condition themselves to the operating environment when brought in from a storage environment with different temperature and humidity.

Always store and use tape in the cleanest environment possible, away from magnetic fields.

DO:

Do store tape in a box or its transport when it is not being used.

Do trim damaged tape ends.

Do clean the tape path of the tape machine as often as possible.

Do rewind poorly packed tapes.

Do store and use tape in a comfortable, controlled environment.

Do allow tape to acclimate itself to the tape room environment before using it.

DON'T:

Don't use the top of the equipment as a work area.

Don't let tape get close to the floor.

Don't handle tape without lint-free gloves.

Don't smoke or eat in the tape room.

Don't handle reels by the flanges.

Don't stack tape reels horizontally.

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Alma Salcido tries to flip grape jelly into a bowl on the forehead of fellow KULV DJ Dave Stankoski during *Wild Turkey Races*, the annual station Thanksgiving promotion at the University of Laverne in Laverne, California.

From Page 18 - References To Radio Burnout

Bornstein, R. (1984, July). What's next ... after reaching your goals in radio? *Billboard*, p. 1.

Pines, A. M. (1982). Changing organizations: Is a work environment without burnout an impossible goal? In W. S. Paine (Ed.), *Job Stress and Burnout: Research, Theory, and Intervention Perspectives*. Beverly Hills, CA: Sage.

Shields, S. O. (1990). Occupational characteristics of music radio announcers. *Feedback*, in press.

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WRNP & WFNP

Set among rolling hills of apple orchards, the State University of New York at New Paltz has buildings ranging from twentieth century Georgian to contemporary high-rise towers of brick and glass. Its location between the Hudson river and the Shawangunk (Shongum) mountains is ideal for students arriving from the entire Hudson valley.

WRNP, the carrier current station, has been in operation since 1972. An FM station, a goal for 18 years, finally became a reality with WFNP, a new share-time station. It began operations on September 5, 1990.

Top left: Will Robedee, Chief Engineer, at work on one of the computers that handle all of the records, logs, and schedules for the station.

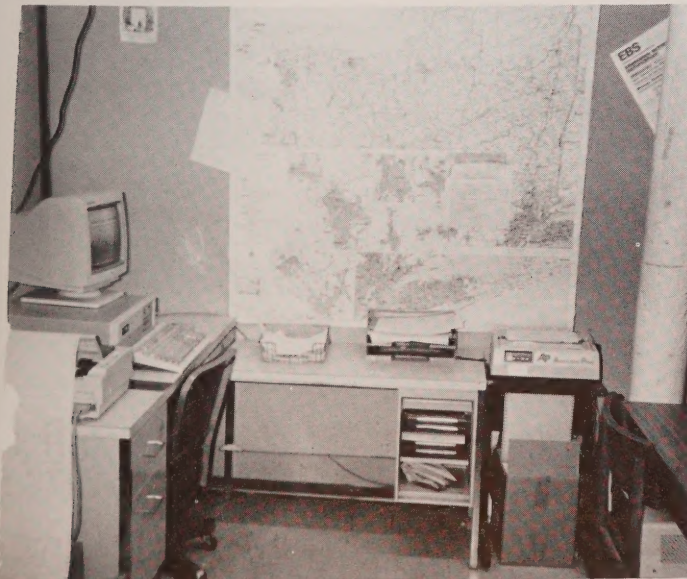
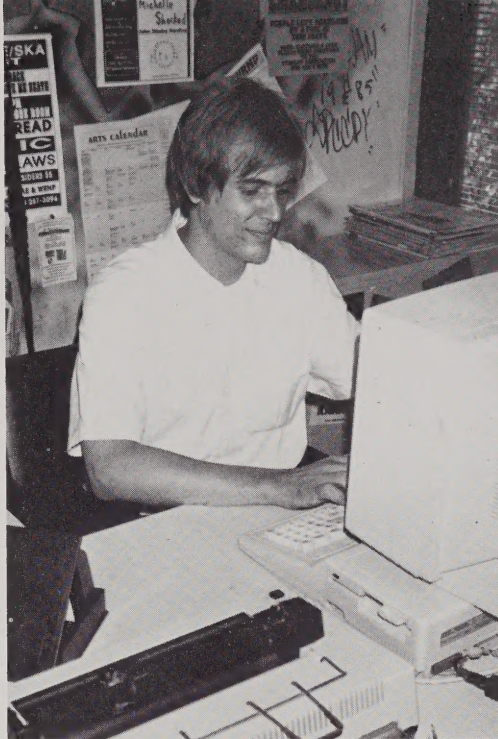
The new FM station required major renovation of the studios. (A future issue of the Journal will report on this project with suggestions for do's and don'ts.)

Top right: Robedee tries the new FM console. The main broadcast control room has 2 CD players, 3 cart machines, 2 turntables, a 2-track reel-to-reel machine, EBS equipment, compressor-limiter, digital delay for live telephone work, and an air monitor.

Right: The WRNP carrier current studio has everything within easy reach; 2 cart machines, 2 turntables, and 2 CD players. The recent renovation added Sonex to the walls for sound absorption.

Lower right: Lee Kobus, Director of Campus Media, works at the production studio console. Production has 3 cart machines, 2 tape machines, 1 cassette deck, 2 portable cassette recorders, 1 CD player, and an effects machine. The old on-air board was retired to the production room when the new FM equipment was installed.

Lower left: The newly installed AP Newsdesk allows the staff to call up news by subject, edit it directly on screen with the help of the self-contained dictionary, thesaurus, atlas, and pronouncing dictionary. When the story is right, it is printed, ready for broadcast. (see page 15 for more on AP NewsDesk.)



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